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The Files, Contract RD-103, Task Orders 2 and 3 12 June 1957

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Trip Report

1. On 4 June 1957 a conference was held in the office of for the purpose of technical liaison in connection with the design of the AS-4 communications system. Those present at the conference were as follows:

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2. opened the conference by giving a rather thorough description of the high-speed processing versions of the AS-4 equipment. This system, the AS-4A, consists of a data transmitting terminal, an RF transmitting terminal, an RF receiving terminal, and a data receiving terminal. The object of these four terminals is to provide complete versatility in the system so that a portion of the system may be installed at

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3. Following the discussion, a visit was made to the laboratories where this equipment is being designed; and the complete data system was viewed in operation with various component parts either in breadboard or final form. This operation consisted of an endless loop tape being read on the Ferranti high-speed reader. This occurred in the transmit data terminal where the intelligence from the high-speed reader was enciphered and then converted into audio tones between 500 and 2,700 cycles for relay by wire line to the transmit RF portion of this equipment. At the RF terminal, the intelligence was converted to the standard QFM signals, and a parity check channel was inserted

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for error correction purposes. The final signal would then be transmitted via QPM modulation and be received at the RF receive terminal. At the RF receive terminal the parity check channel is utilized to correct errors; then, the intelligence is again converted into audio tones for relay by wire line to the receive data terminal. At the receive data terminal, the audio tone intelligence is deciphered and used to operate a Sorban high-speed reperforator moving at the online speed of 1600 words per minute. A number of the units forming the system, including enciphering, deciphering, and high-speed reperforating, for the purpose of this demonstration, were breadboards. This is the first time the complete link has been operated, even in this form.

4. After lunch a trip was made to the [redacted] operated by [redacted] where the standard AS-4 equipment previously fabricated under Task Order 2 of this contract was being tested. A complete transmitter and receiving system was set up at this site and during the course of the afternoon we transmitted and received RF and QUICK BROWN FOX test messages. The test messages transmitted from the [redacted] utilized a standard 231D transmitter. For the transmissions from the [redacted] it is interesting to note that a small 100 watt transmitter was used. There was a rather high level of noise although this did not prevent operation of the system. 25X1 25X1 25X1 25X1 25X1

5. One of these systems being tested will be ready for delivery the first of next month. The second system will be ready during the following month; however, it should be noted that it probably will not be delivered due to the requirement for having a system available for training and then for operation with the AS-6 project when this is started. Also, sometime in the future it would be desireble to have this system available for tests and design purposes in connection with the AS-5. For this reason it appears unlikely that more than one system will be delivered from [redacted] until October or November when we receive the complete high-speed AS-4A. 25X1

6. The contractor, in answer to our request, has indicated that a training course could be established to train from four to eight people in the complete operation and maintenance of the AS-4. It is estimated that this course would require three men and take about six weeks at a cost of about $10,000, which would be paid under the service and support contract. The contractor would like to have as much notice as possible prior to the date we expect to commence this training program and also the number of trainees that will be included.

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7. Crystals and frequencies for the evaluation of the AS-4 have been furnished the [redacted] and the complete system installed at the [redacted] will be in operation on a European-aimed rhombic for the purpose of receiving traffic whenever we deem this desirable. During some portion of the evaluation it is intended to transmitted from a special rhombic installed at [redacted] pointed directly at Los Angeles and determine the feasibility of this extremely long and difficult path for the AS-4 system. The [redacted] will operate the receiving AS-4 equipment and prepare a report on the results of this portion of the test.

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OC-E/R&D-EP/WNH:cmf (12 June 1957)

cc: R&D Subject File
Monthly Report (2)
R&D Chrono
EP Chrono

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